

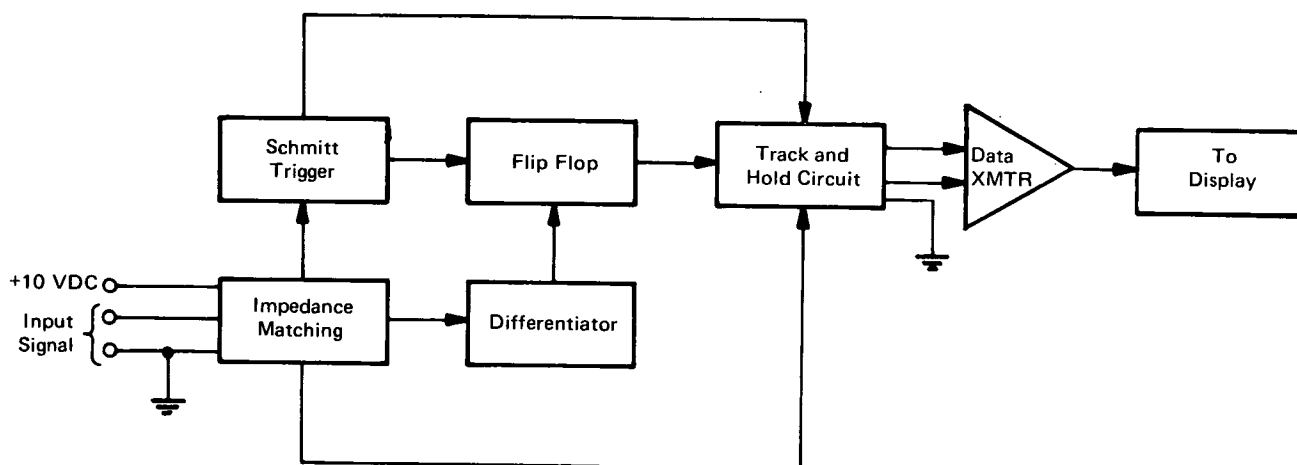
NASA TECH BRIEF

Manned Spacecraft Center



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Blood Pressure Measurement and Display System



The problem:

A simple and economical system is needed that will transmit human blood-pressure readings obtained from a subject.

The solution:

A system is available that employs solid state circuitry to transmit a visual display of the patient's blood pressure.

How it's done:

A sphygmomanometer cuff is placed around the subject's upper arm with a microphone properly positioned between the arm and the underside of the cuff. The microphone's response to the pumping sound of the pulse and the cuff response to the accompanying increase in its internal pressure form the input signal shown on the block diagram. The impedance matching network sets the switching levels for the circuit and minimizes circuit sensitivity to transients. Upon turn-on, the Schmitt trigger output, capacitively coupled to the flip-flop, produces a sharp negative pulse. At this juncture, the cuff pressure begins to decrease and an ac component

is superimposed on the input signal (this is at the systolic pressure level.) The ac signal is detected by the differentiator and provides a reset pulse to the flip-flop.

The track and hold circuit tracks the dc level of the input until the ac component is detected, at which time the circuit shifts to the hold mode and presents a steady output. This steady output continues until the ac component is lost. This occurs at the diastolic pressure level at which time the entire cycle is repeatable.

The signals and their amplitudes from turn-on time to turn-off time are continuously fed to the data transmitter, which transmits to the display device. The display device may be placed in any convenient location.

Note:

Requests for further information may be directed to:
 Technology Utilization Officer
 Manned Spacecraft Center
 Code JM7
 Houston, Texas 77058
 Reference: TSP72-10334

(continued overleaf)

Patent status:

No patent action is contemplated by NASA.

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